

Academic Mission, Department of Geology
by

Dr. K.K. Mukherji

This submission has been prepared to provide an outline of the Academic Mission of the department for the next five years.

Every discipline within the University context aspires to participate in three principal areas of academic involvement: undergraduate teaching, graduate studies and research. The department has met the first objective with success, there has been some faculty success in research, but the pursuit of graduate teaching has not been realized. The lack of a graduate programme and limited success in research can be attributed to a number of factors. At the time of merger of SGW University and Loyola College neither of the founding geology departments had sufficient faculty strength or equipment to venture into graduate teaching. Faculty members dedicated themselves entirely to the teaching and development of a strong undergraduate curriculum. The department had neither the necessary core (3 to 4) of established researchers to initiate graduate program, nor the research priorities for external funding. In the absence of a minimum level of technical infrastructure the attempts of several members failed to develop into sustainable research. Immediately following the establishment of Concordia University the Department of Geology lost two full-time faculty positions due to the untimely death of Dr. Deland and the resignation of Dr. Chown. Undergraduate enrollment in geology follows highly unpredictable cyclical trends and the department could not formulate any long term policy in the absence of any clearly defined academic commitment from the administration.

Concordia being located in an urban setting with four other Universities, academic planning has constraints which must be addressed rationally. In the prevailing socio-economic climate any proposal for graduate study must take into account:

- a) the academic impact of the programme in the context of future social and urban development
- b) the distinctness of programme structure so as to avoid duplication
- c) economic feasibility of the programme
- d) the demand for such a programme

Manpower demands for our graduates are controlled by a variety of factors, perhaps the most usual case in Geosciences being the economy and its interaction with resource issues. Other factors that may influence demand include national programmes aimed at basic research and needs for technological developments in specific areas. Recently announced federal and provincial legislations now provide a strong impetus for the Geosciences to assume major roles in programmes dealing with waste disposal, environmental management and related fields. Geosciences are now faced with a new development that will have an important effect on market place and a new demand for skills in certain applied disciplines. To meet this challenge the department has the responsibility to develop appropriate interdisciplinary programmes with a strong foundation in the traditional geology discipline. In this connection it has to be emphasized there is no substitute for a firm foundation in Geology and a thorough understanding of basic principles is essential for entrance into a more "applied" graduate programme.

Introduction of a diploma programme in Environmental Geology is proposed to initiate graduate study in the department. Clear advantages of the proposed programme in the applied field is that it meets the requirement of nonduplication of graduate programme in the province.

The department of Geology is reaching a crossroad and proper decisions must be made without delay to set the future academic objectives of this important discipline to meet the challenges of the coming decade. The necessity of a strong basic undergraduate programme has already been established. Recently acquired equipment will be able to provide analytical support for graduate programme on a limited basis in the near future.

This department has the highest average faculty age among geoscience departments in the province, with three senior members (50%) due to retire by 1995. Personnel decisions must be made and implemented immediately to maintain and improve the existing operation and at the same time make possible a new departmental direction towards graduate study and research.

Details for the execution of the academic plan are given in the attached appendix. It is hoped that there will be a sincere effort on the part of all concerned parties to transform the plan into reality.

I look forward to receiving your response to this departmental academic mission.

APPENDIX

ACADEMIC MISSION FOR GEOLOGY

Present Faculty Resource and Teaching Commitment

No. of faculty	FT/Pt	Breakdown of current teaching load	Credits offered
6*	FT	(11+12+12+16+9+3)	63
10	PT	(3 each)	30
Total course credits offered			93

*Note: One member is already on half retirement. Second member is retiring in May 1991 and the third member will be at retirement age by 1995.

Proposed Distribution of Credits in Departmental Operation

Required geology credits for undergraduate programmes	57
General interest courses	12
Teaching of graduate diploma programme	15
Upgrading of undergraduate electives to advanced level (to be taken by undergraduate and graduate students).	6
Total course credits	90

Faculty Personnel Required for Undergraduate and Graduate Teaching (1992-93)

No. of faculty	FT/PT	Breakdown of teaching load	Total credits to be taught
7*	FT	(9+9+9+12+12+12+12)	75
5	PT	(3 each)	15
Total operational credits			90

*Note: Two faculty positions will be replacements for retiring faculty and one is a new position.

Proposed Distribution of Credits in Undergraduate and Graduate Programme (Environmental Geology)

Undergraduate programmes	57 credits
Graduate Diploma (Applied Environmental Geology)	15 credits (to be offered by geology faculty)
Additional credits for the Diploma programme to be taken from relevant disciplines (Biology, Chemistry, Physics, Engineering and Geography)	12 credits

Required Faculty Specialties

1. Sedimentology, Stratigraphy and Paleontology (exists).
2. Mineralogy, Igneous and Metamorphic Petrology (exists).
3. Tectonics, Geophysics and Exploration (exists).
4. Economic Geology, Ore Deposit and Mining (exists).
5. Structural Geology, Remote Sensing and Aerial Geology (to be replaced on faculty retirement in 1991).
6. Physical Geology, Hydrogeology/Engineering Geology (to be replaced on faculty retirement possibly in 1992).
7. Low Temperature Geochemistry/Industrial Rocks and Minerals (new position to be created in 1993).

Plan of Faculty Hiring and Launching of Graduate Programme

1991. Faculty position 5 must be replaced. Details of Graduate Diploma curriculum to be determined and Undergraduate curricula be reviewed.
1992. Faculty position 6 be replaced and the Graduate Diploma curriculum will be finalized.
1993. Faculty position 7 is given to the department and the Graduate Diploma in Geology will be initiated. The possible introduction of a Graduate Degree (MSc) programme should be discussed since by this time faculty position 3 might be due for replacement. At this time 4 of 7 faculty will be younger persons, recently added. Such a faculty should be eminently equipped to oversee the implementation of a full-scale graduate degree programme.

Teaching Load of Faculty

Faculty members who participate in the Graduate programme should teach a total of 9 credits and other members will be expected to instruct in courses to a maximum of 12 credits. Besides teaching ability, competence in and potential for research should be an important criteria in selecting new faculty.

Non-Teaching Staff Requirements

When the Graduate Diploma programme is introduced (1993) the department must have 2.5 full-time technical personnel and 1 secretary.

Space and Seed Research Fund Requirements

In 1993 the department will require one additional faculty office, two offices for graduate students and approximately 400 sq. ft. of research laboratory besides the existing or approved physical space. There will also be a need for \$60,000-\$70,000 to provide start up research money to 3 new faculty members. In addition, funds for upgrading laboratory equipment

will be needed, but this cost will depend upon the precise interests of the new faculty. It is hoped following this initial stage of internal assistance faculty members will be in a position to attract external research funding.

Cost Effectiveness

Implementation of the proposed programme will require only one new faculty position in the department because at present there are 6 full-time professors. Also, there will be 50% reduction in the number of part-time faculty. Appointment of three junior level faculty members to replace three senior members (2 professors, 1 associate professor) would mean significant savings in the faculty salary budget. The proposal is an attractive and viable one because none of the local institutions will have programmes similar to Concordia's Geology department, moreover such a programme will be relevant to Quebec's changing socio-economic situation.